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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	09/700,863	Confirmation No. 2839
Applicant	:	Philip E. Howse	
Filed:	:	November 21, 2000	
TC/Art Unit:	:	3644	
Examiner	:	Kimberly S. Smith	
Docket No.	:	A0-1269	
Customer No.	:	27127	

DECLARATION UNDER 37 CFR §1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

I, PHILIP E. HOWSE, depose and say that:

(1) I am the sole inventor of the subject matter covered by each of the claims pending in the above-identified patent application ("Application"). I am also the sole inventor identified in WO 94/00980 to Howse (the "Howse publication") and U.S. Patent No. 6,041,543 to Howse (the "Howse patent"). The Howse publication is the priority document for the Howse patent. For convenience, I will refer to these references individually and collectively simply as "Howse."

(2) The pending claims of the Application are rejected as being disclosed by Howse and/or obvious over Howse alone or in combination with other prior art.

(3) The operation of the traps disclosed in Howse depends on powder adhering as a fine layer on a resistive (preferably plastic) surface that does not conduct the charge away. If the powder did not adhere to this "powder-retaining surface" when the trap is disturbed or shaken, the mechanism of the trap would be nullified because the powder would fall from the powder-retaining surface on which insects are intended to walk or land. If this were to happen, the insects would then be able to retain their purchase on the surface and therefore exit the trap. Furthermore, the powder would fall on the sticky surface located beneath the powder-retaining surface, thereby reducing the adhesive properties thereof.

(4) In view of the above, electrostatic charging of the particles during setting up is essential for the Howse traps. As explained in Howse, electrostatic charging can be achieved in various ways, such as by corona charging in which the powder is passed through a strong electrical field, or by tribocharging in which the powder is shaken strongly or subjected to strong airflow, with the resulting frictional forces leading to the formation of a cloud of charged particles that distribute themselves evenly (because when charged they are mutually repellent) on the targeted surface.

(5) Thus the operation of the Howse trap and the manner in which it is prepared involves a very fine, evenly distributed layer of powder well adhered to a surface. This adhesion is not so powerful that the powder will not transfer to the body

of an insect when on or very close to the surface. However, Howse does not disclose or suggest that an insect could act as the mechanical agent that would do the tribocharging of the powder and so cause self-contamination of the insect. While the electrostatically-charged powder could detach as a result of mechanical disturbance that is strong enough, the Howse traps are designed to function under typical conditions in which removal of the powder from the powder-retaining surface is the result of physical contact between the insect and powder.

(6) In another embodiment disclosed in Howse, reference is made to powder being blown over aphids as a method of applying electrostatically-charged powder to an insect (or plant) rather than to a surface of a trap. In this embodiment, the powder may be, for example, tribocharged by an air current (e.g., from a puffer or aerosol) so that the powder particles adhere to objects in the path of the airstream as a result of their electrostatic charge characteristics. As such, in this embodiment the behaviour of the insect plays no active role in the electrostatic charging of the powder or the contamination of the insect with the powder.

(7) With regard to the Examiner's argument that Howse's powder "may become electrostatically charged during operation," this conclusion was drawn from a phrase at column 4, lines 8-13, of the Howse patent, namely,

> Frictional charging of the particles in the case of traps may take place during manufacture, during assembly, prior to operation and/or during operation.

The Examiner concluded that "[a]s the particles are considered to be sufficiently fine to become airborne, they are capable of becoming airborne, and thus become electrostatically charged, during operation by an insect flying thereover." However,

from the above it is clear that the Howse particles must be electrostatically charged *prior* to use of the Howse trap. As such, the particles would not *become* electrostatically charged if rendered airborne, and in any event would not be rendered airborne and *then* electrostatically charged by an insect flying thereover. Consequently, by use of the term "during operation," I did not mean that the particles could be frictionally charged by the activity of an insect; instead, the intended meaning was that during the process of bringing the trap to an operating condition, it would need to be shaken to charge powder within the trap as it was being placed in position.

(8) In my present invention, there are at least two fundamental features that I did not address in the Howse documents. First, the powder needs to be as mobile as possible on the surface on which it is present so that the powder will easily detach from the surface in response to either the downwardly-directed vortex of air produced by an insect landing or taking off from the surface, or by the insect "kicking up" the powder as it moves across the surface. Secondly, the powder is more likely to adhere to the surface by molecular forces if the powder is present as a very fine layer; therefore, to counter this phenomenon, the powder is preferably present in thick layers within recesses in the surface.

(9) It follows that where a key feature is the ability of the powder to become easily airborne by exposure to a relatively weak air flow (e.g., a flying insect), it would be detrimental to electrostatically charge the powder when setting up the trap. On the other hand, without an electrostatic charge there is a risk that the powder will be blown away by wind. Accommodating the powder in recesses as described in my Application significantly reduces the likelihood of air currents parallel to the surface

containing the recesses will carry away the powder, while still enabling the downward vortices produced by insects landing and taking off to have the desired effect of rendering the powder airborne.

(10) The dragonfly noted by the Examiner (or another very large insect) as flying through a trap of the type described in the Howse document could have the same effect as a gust of wind, and possibly render fine particles airborne. However, from the above it is evident that the very operation of the Howse traps depends on ensuring as far as possible that particles that have been deposited on the powder-retaining surface are *not* readily dislodged. In contrast, for the operation of my present invention, it is essential that the particles are easily dislodged. In my mind at least, the present concept was not a simple extension of the other.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

P. E. Howse

Philip E. Howse

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